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ARMY AVIATION SUPPORT TO NAVAL OPERATIONS

by

Jeffrey S. White

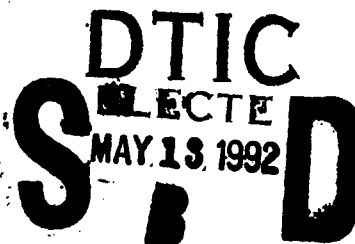
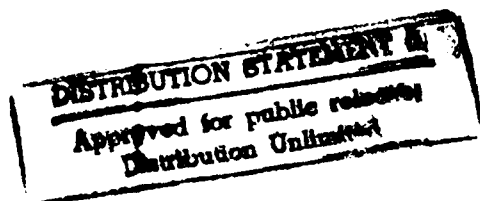
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Abstract of
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TABLE OF CONTENTS

CHAPTER		PAGE
ABSTRACT		ii
I	INTRODUCTION	1
II	ARMY AIRCRAFT AND MISSIONS	3
	Attack/Cavalry	3
	Assault	5
	General Support	6
	Aerial Exploitation	7
	Special Operations	8
III	ARMY AIRCRAFT AND NAVAL WARFARE	10
	Anti Surface Warfare	10
	Strike Warfare	11
	Mine Warfare	12
	Electronic Warfare	13
	Anti Submarine Warfare	14
	Anti Air Warfare	14
	Special Operations	15
	Amphibious Warfare	16
	Logistics	17
IV	EVALUATION	18
	Limitations	18
	Strengths	19
V	CONCLUSIONS	21
NOTES		23
BIBLIOGRAPHY		25

ARMY AVIATION SUPPORT TO NAVAL OPERATIONS

CHAPTER I

INTRODUCTION

In October 1987 the United States Army's XVIII Airborne Corps at Fort Bragg, North Carolina was directed to "organize, equip, train, deploy, and sustain an aviation unit with the mission of operating at night, over water, utilizing night vision goggles from naval platforms in the Persian Gulf".¹ This unit was the 4th Squadron, 17th Cavalry Regiment. Formation of the 4/17 Cavalry began a new era in Army aviation as it deployed on 26 February 1988 with the first armed OH-58D Kiowa Warrior aircraft delivered to the Army. Operating first from the mobile support bases "Wimbrown 7" and "Hercules", then later from over 35 different frigates and destroyers, the 4/17 Cavalry provided the United States Navy with reconnaissance, close in protection, and precision strike capabilities until the end of Desert Storm in 1991.²

Following their redeployment in 1991, the Chief of Naval Operations, Admiral Frank B. Kelso II, summed up the 4/17 Cavalry's contribution in part with the following message:

"... The Navy salutes them for their courageous actions and distinguished service while facing the dangers and uncertainties of operating in the Middle East regions; they have exemplified what jointness is all about. My personal Bravo Zulu to each member of the 4/17th Cav... They have earned a permanent deck spot on my ships."³

The lessons from the 4/17 Cavalry are clear. Army aviation is a potent, diverse, and capable combat force which can be integrated into naval operations when needed. The declining defense budget is forcing planners to increasingly look outside of their own services for forces, weapon systems, and capabilities to enhance combat effectiveness. The increasing "jointness" of the services should serve to make operations such as that of the 4/17 Cavalry routine rather than exceptional. This paper will examine U.S. Army aircraft and missions in order to find appropriate ways to integrate their capabilities into naval operations.

CHAPTER II

ARMY AIRCRAFT AND MISSIONS

The United States Army operates over 9500 fixed and rotary wing aircraft of at least 24 distinct types.¹ They are as diverse as the venerable UH-1 Huey of Vietnam fame to the AH-64 Apache with its nine million dollars plus of computerized avionics and armament systems.

Army aircraft are assigned to units called companies consisting of between 10-15 aircraft, commanded by a captain. Three to five companies are further grouped into battalions, commanded by a lieutenant colonel, and organized to support one of five broad missions. These missions are Attack/Cavalry, Assault, General Support, Aerial Exploitation, and Special Operations. Each mission and the active army aircraft used to support it can be briefly outlined as follows:

Attack/Cavalry. Attack battalions and cavalry squadrons have the mission of finding and fixing, then closing with and destroying enemy forces. They are the "shooters" or "trigger pullers" of army aviation. Each battalion is organized with scout aircraft, such as the OH-58, to find the enemy and attack aircraft, such as the AH-1 or AH-64, to close and destroy.

The OH-58 is a four place single-pilot helicopter best known by its civilian name, the Bell Jet Ranger. It is very small and agile, capable of flying at 120 knots for about two and one half hours. Typically unarmed, the aircraft carries additional radios to allow it to communicate with ground and air units as needed.²

The AH-1 Cobra first saw action in Vietnam. Through the years it has seen many upgrades to include the addition of the TOW wire guided anti-armor missile, a 20mm rapid fire cannon, and improvements to the 2.75 inch Hydra-70 rocket system. With about two and one half hours of fuel, the AH-1 can cruise at 140 knots. Its single engine does, however, limit its ability to carry full loads of armament in hot or humid environments and the 3750 meter range of the TOW missile is lessened when firing over water.³

Replacing the AH-1 in most attack battalions, the AH-64 Apache is the Army's premier attack helicopter. A four-bladed rotor system along with two engines gives this helicopter power to spare when delivering its Hellfire missiles. In combination with 16 laser guided Hellfires which have significantly increased range, the Apache can carry Hydra-70 2.75 inch rockets and has a turret mounted 30mm rapid fire cannon. The Apache is extremely accurate and the PNVIS (Pilots Night Vision System) gives it an all weather day night capability. Further, the AH-64 can mount external fuel tanks -- giving it a range of up to 1100 nautical miles. Without external tanks (which replace weapons stations) the

AH-64 can cruise at 160 knots for about three and one half hours.⁴

The OH-58D Kiowa Warrior is the Army's newest attack helicopter/armed scout. Although it started as a basic OH-58, the aircraft has been extensively modified to include a four-bladed rotor system and a mast mounted sight as well as the capability to deliver Hellfire missiles, Hydra-70 rockets, and minigun from side mounted pods. Removal of the rear seats allowed for upgraded avionics and enhanced night observation equipment. The OH-58D will eventually replace the AH-1 and OH-58 in cavalry squadrons where their primary mission will be to provide the "eyes and ears" to Army division and corps commanders.⁵

Assault. Assault battalions provide the necessary lift to bring combat troops and equipment into battle. Assault battalions are normally equipped with the UH-1 Huey, the UH-60 Blackhawk, or the CH-47 Chinook.

The UH-1 Huey has been in service for over 25 years and was used extensively in Vietnam. The Huey gained a reputation for being a reliable and combat worthy aircraft, able to take a lot of hits and continue the mission. The UH-1 can carry 10 combat troops or a 2000 pound external load. It can cruise at 120 knots for two hours on its single engine.⁶

Replacing the Huey throughout the Army, the UH-60 Blackhawk is now the Army's primary assault helicopter. The UH-60 can carry 12 combat loaded troops and up to a 6000 pound

external load on its hook. The Blackhawk can cruise at 150-170 knots for 2.3 hours. The addition of an ESSS (external stores support system) allows it to also carry four external tanks increasing its range to about 1100 nautical miles.⁷

The CH-47 Chinook is the Army's medium lift helicopter. It is capable of transporting 32 fully combat loaded troops or 16,000 pounds of internal cargo. It can carry 23,000 pounds externally on its triple hooks. The Chinook can cruise at 162 knots for two hours and has the capability of carrying internal fuel tanks to extend its range. It is a very large aircraft with a tandem rotor system. The Chinook is 100 feet long, 60 feet wide, and weighs up to 50,000 pounds fully loaded.⁸

General Support. General support aviation battalions provide aircraft for a multitude of missions. These battalions are normally comprised of a combination of UH-1 companies, OH-58 companies, and CH-47 companies. Although able to augment attack and assault battalions, their primary role is that of providing aircraft for command and control, transportation of personnel and movement of heavy equipment within the corps area. Additionally, some general support battalions may have C-12 airplane companies assigned to provide inter-theater transportation. The C-12 is a twin engine, seven passenger aircraft with about 1200 nautical miles range at 250 knots. Some models are also able to transport light cargo via an enlarged rear door.⁹

Aerial Exploitation. One Aerial Exploitation Battalion (AEB) is assigned to each Army corps. They are comprised of Special Electronic Mission Aircraft (SEMA) which conduct electronic warfare and intelligence gathering missions. The three basic SEMA aircraft are the RC-12K Guardrail, the OV-1D Mohawk, and the EH-60 Quickfix.

The RC-12K Guardrail is a specially modified C-12 twin engine airplane. Its primary mission is signals intelligence. The Guardrail system intercepts and locates enemy electronic emitters then processes the information in near real time via a ground link. The aircraft can loiter for five plus hours on station.¹⁰

The OV-1D Mohawk is a two seat twin engine airplane which conducts all weather aerial surveillance and target acquisition with its pod-mounted Quicklook system. Like the RC-12K, it is capable of near real time processing of photo, sidelooking radar, and thermal imagery via a downlink to its ground station.¹¹ Additionally the OV-1 can send information directly to JSTARS (Joint Surveillance and Target Attack Radar System) ground stations to be processed.¹²

Quickfix or the EH-60, is an electronic warfare version of the UH-60 Blackhawk. The airframe retains similar flight characteristics, but has been equipped with the necessary transmitters, receivers and specialized antennas to intercept, locate, and jam communications emitters. The EH-60, unlike other SEMA platforms, is assigned down to Army division level.

The quickfix aircraft is a very capable electronic warfare platform.¹³

Special Operations. The Army's 160th SOAR (Special Operations Aviation Regiment) headquartered at Fort Campbell, Kentucky, provides special operations aviation forces to United States Special Operations Command. The 160th SOAR is uniquely trained and organized to accomplish its mission and its three battalions fly specially modified versions of the OH-6, CH-47, and UH-60.

The MH-6 is a four place single engine light helicopter that has been modified for special operations. Additions of FLIR (Forward Looking InfraRed), upgraded avionics, extended range, and armaments have made it an ideal aircraft for the rapid deployment and flexibility needs of special operations forces. Additionally, it is a very quiet aircraft with superior handling, agility and payload characteristics which allows it to move undetected in support missions¹⁴.

Although the MH-60K is a derivative of the Blackhawk helicopter, it has been so extensively modified it has little in common with its older cousin. Major modifications include air to air refueling, FLIR, extended range via external stores support system (ESSS), enhanced armaments, upgraded avionics, and increased payload. The MH-60 is ideal for inserting and extricating special operations forces in all weather, day and night, at extended ranges.¹⁵

Like the MH-60K, the MH-47E is an extensively modified Chinook designed specifically for special operations. The MH-47E is also capable of air to air refueling, and has enhanced armaments, avionics, and navigation systems. The MH-47E provides special operations forces with long range medium lift, day and night, in all weather conditions.¹⁶

CHAPTER III

ARMY AIRCRAFT AND NAVAL WARFARE

Although Army aircraft are designed with the Army aviation mission in mind, they are none the less capable of assuming a wide variety of missions applicable to naval operations. In many respects, the day to day tasks performed by naval forces are very similar to those performed on land by Army aviators. While the force structure and training of Army aviation units may have to be adapted to the Navy, the airframes are capable of assuming a multitude of support roles as demonstrated by the following proposals and examples:

Anti Surface Warfare. In considering the naval warfare tasks, it is perhaps easiest to fit Army aviation into a role within Anti Surface Warfare (ASUW) because of the recent operations conducted by the 4/17 Cavalry. While not suited to seeking out and destroying large surface combatants, attack units are ideally suited to providing close in protection against small, fast boats engaged in hit and run tactics.

Attack helicopter units train to fly and fight at night, without lights, at altitudes below 50 feet. This mission profile makes them extremely difficult to detect and engage. The pinpoint accuracy and range of the Hellfire missile makes it an ideal weapon to engage small, fast patrol craft. Additionally, the helicopter's range and speed allow it to

patrol areas significantly farther out than that covered by shipboard radar. Finally, the night vision systems in attack helicopters, especially those found in the AH-64 and OH-58D, allow them to see through the night and into the areas masked by the surface clutter of radar. External tanks on the Apache can extend the aircraft's range and endurance while performing ASUW. As mentioned earlier, the Kiowa Warrior has already proven its worth in the ASUW mission. On 1 February 1991, Kiowa Warriors operating from a U.S. Navy frigate were credited with detecting, engaging, and sinking three Iraqi patrol boats as well as heavily damaging a fourth white operating under the Navy's control in the Persian Gulf.¹ This is conclusive evidence that Army helicopters are not only effective in theory but, in practice as well!

Strike Warfare. The same factors that make attack helicopters attractive against small boats make them doubly attractive in strike warfare (STW). Attack helicopters are very hard to detect. At typical mission altitudes (below 50 feet) it is more appropriate to think of them as 150 MPH tanks than as aircraft! The flexibility of their weapons makes them not only deadly against hardened point targets such as bunkers and tanks, but also against soft targets such as communication sites, power substations, and troop formations. A typical mission load for an AH-1 or AH-64 helicopter includes eight missiles (TOW or Hellfire), 38 Hydra-70 rockets (with up to three cockpit selectable warhead types), and over 600 rounds

of High Explosive Incendiary (HEI) ammunition for the cannon. Range again can be extended on the AH-64 by replacing either the rockets or missiles in lieu of wing tanks. The lethality and surprise which attack helicopter missions are capable of was vividly demonstrated by eight AH-64s which flew deep into Iraq, undetected, on the morning of 17 January 1991 to take out a command and control center of the Iraqi Air Defense Network.² Also, on 16 February 1991 two OH-58Ds, working from a Navy frigate, attacked and destroyed an Iraqi silkworm site that had previously escaped unscathed from two separate strikes by A-6 Intruders. The pinpoint lethality of the Hellfire missiles, coupled with the Iraqi's inability to detect the low flying helicopters, allowed the 4/17 Cavalry to not only destroy the silkworm site but also an adjoining ammunition dump. The successful attack allowed the Navy's amphibious task force to move further into the Gulf in preparation for its feint in support of Desert Storm.³

Mine Warfare. Army aviation can also make a significant contribution to Mine Warfare. Although Army aircraft cannot contribute significantly towards the detection of mines, it is conceivable that the precise delivery of high explosive cannon fire from the AH-1 or AH-64 would provide a quick solution to floating mines once identified. Attack helicopters can be very effective at offensive mine counter measures. It was a pair of U.S. Army helicopters that ambushed the Iranian minelayer Iran Ajar on 22 September 1987 forcing the crew to

surrender to U.S. forces. The Army helicopters were assigned in support of naval operations for the Kuwaiti tanker reflagging and escort operation "Earnest Will".⁴ .

In support of our own mine laying efforts, the UH-60 Blackhawk can be equipped with the Volcano minelaying system. This highly versatile system allows a single Blackhawk to deliver 960 antitank and/or antipersonnel mines in shallow water or on the beach during a single mission. Further, the Volcano uses a standard mine, the BLU 91/92 "Gator", which is already in service with the Navy.⁵

Electronic Warfare The role of electronic warfare (EW) changes little whether applied on land or at sea. However, except for the EH-60 Quickfix, Army aviation's EW assets are fixed wing, land based aircraft. These Special Electronic Mission Aircraft (SEMA) are exceptionally capable platforms that not only can, but should be integrated into Naval operations when within range. The RC-12 system can intercept, locate, and plot signal emitters such as ships or on-shore communications facilities. The OV-1 Mohawk, with its sophisticated imaging equipment, is capable of providing near real time pictures of the intercepts. The upcoming ability to interface with JSTARS will help to quickly disseminate this information among services. The EH-60 Quickfix, which can be carried aboard ship, provides excellent capabilities for detecting and jamming enemy communications at extended ranges. The ability to integrate and apply the abilities of these

platforms into naval warfare is strictly limited to the imagination and creativity of the naval planner.

Anti Submarine Warfare. Of all the naval warfare tasks, Anti Submarine Warfare (ASW) is the least capable of being performed by Army aviation. ASW is an extremely difficult mission requiring specialized platforms, specialized training, and -- even under the best of conditions -- a great deal of luck. Probably the only contribution Army aviation can make is to keep alert for a chance sighting. Due to the sheer number of aircraft the Army operates a submarine might be spotted. Deisel electric submarines which are recharging batteries or operating on the surface could be engaged and neutralized by attack helicopters in the event a sighting was reported. All told however, ASW is at best an unlikely mission for the Army.

Anti Air Warfare. The low, relatively slow mission profile of Army helicopters allows them to operate in an environment usually devoid of high performance aircraft. Naval forces have superior weapons systems for engaging fast, high altitude threats to their survival. The OH-58D can extend the air defense umbrella to some degree through its air to air stinger system;⁶ However, it seems as unlikely that fast movers will descend down to the range of close-in air defense weapons as it is that Army helicopters would try to fly up and meet them in their own environment. This is not to

say that Army aviation cannot find its niche in Anti Air Warfare (AAW). Considerable thought has been devoted recently to the terrorist air threat. How do naval forces protect themselves against a Cessna packed with high explosives operating in a congested area like the Persian Gulf? In this scenario, Army aviation shines. Agencies such as the Drug Enforcement Agency and Customs have been using the UH-60 and AH-1 for years to chase down and identify small aircraft suspected of smuggling drugs.⁷ The relatively high speed (compared to small civilian airplanes) of the Army's AH-64 and UH-60 combined with their ability to match and fly very low altitudes and airspeeds without stalling, allow them to make very precise intercepts and identifications. The onboard armaments of these aircraft are sufficient to destroy any threat found hostile long before they become a danger to surface combatants.

Special Operations. Army special operations aviation is ideally suited to providing support to naval operations. The aircraft are already modified to facilitate shipboard handling and the aircrews are trained and ready to support naval special operations forces. The mission of supporting naval special operations is one which is already tasked to the Army and is routinely supported. The Army's 160th SOAR has primary responsibility for helicopter delivery and support of special operations forces. Special operations forces are controlled by the CINC's special operations cell.

Amphibious Warfare. There is literally no aspect of amphibious operations in which Army aviation cannot provide support. Marine and Navy helicopters can be augmented by Army helicopters throughout an amphibious operation with only deck space limiting the scope of support. Army helicopters, especially when able to stage from land bases, can provide Over The Horizon (OTH) assault on a scale unknown to the Marines. Army aviation brigades have literally hundreds of helicopters. The Army's 101st Airborne Division (Air Assault) has almost 400 helicopters alone; enough to simultaneously lift an entire infantry brigade with all its associated howitzers, trucks, and heavy equipment.⁸ Army attack helicopters can augment Marine AH-1s providing close air support, interdiction, and suppressive fires. Medium helicopter companies can transport vital supplies from ship to shore during the build up phase of operations. While the Marines are specifically tailored and trained for amphibious warfare, their operations on land allow them to be easily supported by Army aviation which understands those requirements and priorities. While deck space or operations away from land-based Army aircraft units will often preclude the use of Army aviation assets, the capabilities of this potent asset deserve consideration by planners when available. Further, like the Marines, the U.S. Army is charged with maintaining an amphibious capability and can exercise it when required.

Logistics. No operation -- whether on land or sea -- can be successful without logistical support. The capability to feed, fix, and fuel modern combat forces is essential to the conduct of all warfare tasks. Army aviation can be a key player in this arena. General support units can easily transport supplies and people to naval forces operating within range of land. Cargo helicopters such as the CH-47 are capable of picking up huge external loads and delivering them to ships. Personnel can be moved via UH-1 from shore to ship and vice versa. Joint Task Force commanders who are afloat can utilize command and control helicopters outfitted with special communications consoles. These command and control aircraft can provide both communications with ground component commanders and transportation to and from ship. Operations orders, plans, taskings, small repair parts, and individuals can utilize the courier capabilities of the OH-58 Scout. Even ship to ship transfer is a viable mission when naval helicopters are unavailable. The importance of a coordinated, smoothly operating, uninterrupted pipeline should lead naval logisticians to explore every resource available to them and maximize the use of interoperable systems, especially in an era of dwindling resources.

CHAPTER IV

EVALUATION

Limitations. Despite the many and varied capabilities of Army aviation, it is not a panacea in itself. There are many significant limitations in the use of Army aircraft supporting naval operations, not the least of which is their primary function as a combat element organic to the Army division or corps. Army aviation is primarily responsible for providing a significant part of the warfighting capability in current forces. Also, Army aircraft are not designed with the marine environment or shipborne operations in mind. Unlike Navy aircraft, key parts lack corrosion resistant construction and metals. This means enclosed storage and daily fresh water washing are essential to sustained operations. Furthermore, Army helicopters lack the significant capability to fold their blades quickly. At least 45 minutes is required to fold and unfold the main rotor blades of a modern helicopter such as the UH-60 or AH-64.¹ While not affected by blade folding limitations, older two-bladed aircraft such as the UH-1 and AH-1 are single engine aircraft and thus make extended operations over water considerably more risky. The absence of a rotor brake on all types of helicopters other than the AH-64 complicates shipboard handling and operations. Although adding a rotor brake is fairly uncomplicated and inexpensive, the addition of avionics is not. Army aircraft lack the

sophisticated navigation and communication gear which makes finding ships and landing on them possible in poor weather conditions. Further, even with the installation of these avionics, attack helicopters are not considered Instrument Flight Rules (IFR) capable, merely IFR recoverable.

The operation of Army helicopters is further complicated by the incompatibility of Army ammunition with navy storage requirements. Some ammunition types such as the Hellfire, TOW, and Hydra-70 rockets can be substituted (time permitting) with Marine Corps procured ammunition, however, other types such as the 20 mm and 30 mm must be stored with waivers granted by the Navy.²

The final obstacle to employment is the size of army units. Army aviation is organized into companies and battalions. Units are not designed or manned to be employed piecemeal or as individual aircraft. The deployment of a 10 aircraft company on five to six ships may be required to get the command, control, and support systems in place for operation of a single aircraft for extended periods.

Strengths. One of the Army aviation's greatest strengths is its huge number of aircraft. Unlike the Marine Corps or Navy, the Army numbers its active rotary wing fleet in the thousands. The sheer numbers of aircraft available is a significant resource.

As discussed previously, Army aircraft fly very, very low, at night, without lights and thereby are nearly

undetectable by either radar or the naked eye. Night vision goggles and sophisticated targeting systems make Army attack helicopters extremely precise and lethal. The capability to carry a wide variety of ammunition, in varying configurations, with considerable range allows the attack helicopter to greatly expand the capabilities of a surface combatant.

Flexibility, however, is the greatest asset Army helicopters bring with them to naval operations. Army aviation can contribute in some measure to every naval warfare task. Although specialized by a broad mission design, the airframes are responsive, and able to provide a variety of services within that design. Blackhawks, for example, have the capability not only of lifting troops and carrying external loads of supplies, but also detecting and identifying potential threats and providing limited protection against soft targets. This flexibility is the hallmark of Army aviation and is carried throughout the entire Army aviation fleet.

CHAPTER V

CONCLUSIONS

Army aviation is a powerful, capable force multiplier with tremendous potential for supporting naval operations.

The Army has procured and modernized a significant number of airframes which are ideal for supporting those niche missions which are impractical for the naval services to support on their own. Shrinking defense budgets will necessitate the Navy looking more and more frequently to other forces to fulfill the requirements of these niche missions. The continuing education of Joint Specialty Officers (JSO) will facilitate the planning and use of Army aviation within otherwise traditional naval operations.

The Army has a mission requirement to maintain an amphibious capability. Joint training and integration into naval operations can only serve to enhance the Army's capability to perform this mission. Further, operations with naval forces has applicability to an increasing number of contingency operations as we draw down our military forces across the Department of Defense.

Army aviation, due to its commonality with other aviation services, is ideally suited to integration within naval operations. The key to successful operations will continue to be familiarity, through training and joint education, to develop an understanding and appreciation for the strengths

and capabilities of each other's services. Army aviation supporting naval operations in the future will not only be smart but essential! We need to do more now to prepare for the future.

NOTES

Chapter I

1. 4th Squadron, 17th Cavalry Regiment, Unit History (Fort Bragg, NC: 1991), p. 1.
2. Ibid., pp. 1-2.
3. Message NO1650 from Chief of Naval Operations to Chief of Staff of the Army, 17 October 1991.

Chapter II

1. "NATO Order of Battle," Janes NATO Handbook 1990-1991, 3rd ed., p. 475
2. Headquarters, Department of the Army, Operators Manual Army OH-58C Helicopter (Washington, D.C.: 1983), pp. 5-1 - 5-12.
3. U.S. Army War College, Forces/Capabilities Handbook Volume II (Carlisle Barracks, PA: 1991), p. 1-37.
4. Ibid., p. 1-38.
5. Ibid., p. 1-36.
6. Ibid., p. 1-40.
7. Ibid., p. 1-41.
8. Ibid., p. 1-42.
9. Ibid., p. 1-47.
10. Department of the Army, Weapons Systems (Washington, D.C.: 1991), p. 97.
11. Forces/Capabilities Handbook Volume II, p. 1-45.
12. Weapons Systems, pp. 92-93.
13. Ibid., p. 95.
14. Briefing with Major Howard Yellen, Adjutant 160th SOAR, Fort Campbell, KY: April 1989.
15. Weapons System, p. 103.

16. Ibid., p. 103.

Chapter III

1. Unit History, p. 3.
2. Douglas Waller, "Secret Warriors," Newsweek, 17 June 1991, pp. 20-23.
3. Frank Colucci, "Warriors at Sea," Defence Helicopter, December 1991-February 1992, pp. 4-8.
4. Ed Magnuson, "Caught in the Act," Time, 5 October 1987, pp. 20-23.
5. Weapons Systems, pp. 88-89.
6. Ibid., p. 25.
7. Personal observation by Jeffrey S. White, Major U.S. Army, Fort Rucker, AL: January 1983.
8. U.S. Army War College, Forces/Capabilities Handbook Volume I (Carlisle Barracks, PA: 1991), p. 2-22.

Chapter IV

1. Interview with Major Richard MacNeally, Aviation Systems Manager, ODCSOPS, Washington, D.C.: 27 December 1991.
2. Colucci, p. 8.

BIBLIOGRAPHY

- ap Rees, Elfan, World Military Helicopters. United Kingdom: Janes Publishing Company, 1986.
- Briefing with Major Howard Yellen, Adjutant 160th Soar, Fort Campbell, KY: April 1989.
- Colucci, Frank. "Warriors at Sea." Defence Helicopter, December 1991-February 1992, pp. 4-8.
- DCSOPS (DAMO-FDV). OH-58D Mission Briefing. Washington, D.C.: 1991.
- _____. Working Paper Attack Helicopter Support Analysis. Washington, D.C.: 1987.
- Department of the Army. Weapons Systems. Washington, D.C.: 1991.
- Halberstadt, Hans. Army Aviation. Novato, CA: Presidio Press, 1990.
- Headquarters, Department of the Army. Operators Manual Army OH-58C Helicopter. Washington, D.C.: 1983.
- Interview with Major Richard MacNeally, Aviation Systems Manager, OPCSOPS, Washington, D.C.: 27 December 1991.
- Magnuson, Ed. "Caught in the Act." Time, 5 October 1987, pp. 20-23.
- Message NO1650 from Chief of Naval Operations, 17 October 1991.
- Moore, Molly. "Helicopters Sink 3 Iranian Gunboats in Persian Gulf." The Washington Post, 9 October 1987, p. A 1.
- "NATO Order of Battle." Janes NATO Handbook 1990-1991. 3rd ed., p. 475.
- Personal observation by Jeffrey S. White, Major U.S. Army, Fort Rucker, AL: January 1983.
- Relch, Peter. "Mesa Copter Could Help in Gulf." Phoenix Gazette, 7 August 1987, pp. 3-4.
- U.S. Army War College. Forces/Capabilities Handbook Volume I. Carlisle Barracks, PA: 1991.

- _____. Forces/Capabilities Handbook Volume
II. Carlisle Barracks, PA: 1991.
- U.S. Army Concept Analysis Agency. The Army Aviation
Modernization Trade-Off Requirements (AAMTOR) Study.
Bethesda, MD: 1988.
- Waller, Douglas. "Secret Warriors." Newsweek, 17 June
1991, pp. 20-23.
- Wragg, David W. Helicopters at War. New York: St. Martins
Press, 1983.
- 4th Squadron, 17th Cavalry Regiment. After Action Review.
Fort Bragg, NC: 1991.
- _____. TACSOP. Fort Bragg, NC.
- _____. Unit History. Fort Bragg, NC: 1991.